

## Geranium Zonal Presto

(*Pelargonium x hortorum*)

A Ball FloraPlant Product

### Propagation

- Choose a well-drained medium with an EC of 0.75 to 0.80 mmhos and a pH of 6.2 to 6.6.
- Stick cuttings within 12 to 24 hours of arrival. Cuttings can be stored overnight, if necessary, at 45 to 50°F (7 to 10°C).
- A rooting hormone is generally not needed, assuming the environment in propagation is optimal. If the soil temperature and/or mist coverage is not optimal, a rooting hormone may help promote early, more uniform rooting.
- A protective fungicide application should be made within 12 hrs. of sticking to reduce the risk of Botrytis.
- Soil temperature should be maintained at 68 to 73°F (20 to 23°C) until roots are visible.
- Begin fertilization with 75 to 100 ppm N when roots become visible. Increase to 150 to 200 ppm N as roots develop.
- As the rooted cuttings develop, high light, appropriate water stress and moderate air temperatures should reduce the need for chemical plant growth regulators (PGRs). Due to their naturally controlled habit, Presto Zonal Geraniums will usually not need any plant growth regulators.
- Pinching should not be necessary during propagation.
- Presto Zonal Geranium rooted cuttings should be ready for transplanting 24 to 28 days after sticking.

### Growing On to Finish

#### Media

- Use a light, well-drained, soilless medium with a pH of 6.2 to 6.6.
- Test the medium regularly during production as Zonal Geraniums tend to acidify the soil in which they are potted, resulting in a lower-than-optimum pH. Early symptoms include cupping of the older leaves and a light brown, circular leaf spot. Symptoms typically appear 7 to 10 weeks after transplanting. Corrective actions begin with stopping the acidification of irrigation water and switching to a nitrate-based fertilizer. Flowable limestone or potassium bicarbonate can be applied for a more rapid correction.

#### Transplanting

- Plant geranium rooted cuttings so the soil slightly covers the propagation media. This will prevent the rooted cuttings from drying out unexpectedly in the early stages of the crop. If this type of drying does occur, damage to the roots of the young plant can be tremendous.
- Ball FloraPlant geraniums are produced in high-light

areas and initiate flowers quickly. For the best vegetative growth, remove any flower buds when potting rooted cuttings.

- Water-in plants thoroughly with clear water immediately after transplanting to ensure good contact between the soil and roots.

#### Temperature

- Day and night temperatures of 71 to 76°F (21 to 24°C) are ideal for the earliest stages of plant development. As the crop matures, night temperatures should be maintained at 62 to 67°F (17 to 19°C) with day temperatures of 65 to 76°F (18 to 24°C).
- Significantly lower night temperatures increase crop time. Higher night temperatures result in excessive stretch, softness of the crop and chlorotic foliage.
- A negative DIF of 3 to 5°F (2 to 3°C) can be used to control growth without significantly slowing the crop or reducing quality.

#### Light

- Zonal geraniums require moderate light levels and grow best at 3,500 to 6,000 f.c. (35,000 to 60,000 Lux).
- Lower light intensities can cause stretch.
- Do not put hanging baskets over Zonal Geraniums, as this will reduce light levels and increase the likelihood of a Botrytis infection.

#### Watering

- Keep the soil evenly moist during production.
- Water thoroughly, leaching regularly to prevent salt buildup.
- On cloudy, dark days, reduce watering to help control Botrytis and stretch.

#### Fertilizer

- Follow initial clear water application with 225 ppm N of a balanced liquid feed later that day or the next morning.
- Use a balanced liquid feed at a rate of 225 to 300 ppm N on a constant feed basis.
- Maintain a pH range of 6.0 to 6.5.
- Check the soluble salts regularly to maintain an EC reading between 1.5 and 2.0 mmhos (SME).
- Be sure to monitor soil salts and flush pots with clear water periodically to prevent the build-up of excessive salt levels.

### Pinching & Disbudding

- Pinching is not required for Presto geraniums.
- For specimen plants in larger pots, a soft pinch will encourage better branching and more flowers, but will delay finish at least 4 weeks.
- Florel can be used on Ball FloraPlant zonal geraniums to increase branching and remove flower buds. Rates will vary with individual growing conditions, but a range of 200 to 350 ppm can be used as a guideline. Florel should be applied as soon as new growth is seen after transplanting, but not within the final 8 weeks of production. Florel can be applied 1 to 3 times, depending on local conditions and container size, at 7 to 10-day intervals.

### Controlling Growth

- Under most conditions, plant growth regulators will not be needed for Presto varieties.
- Presto varieties are more compact, requiring limited PGR applications in 4-in. (10-cm) and 5-in. (13-cm) production.
- If needed, Presto varieties can be treated with Cycocel (750 to 1,500 ppm) applied 1 to 2 times at 7 to 14-day intervals. A tank mix of B-Nine (2,000 to 2,500 ppm) and Cycocel (750 to 1,000 ppm) can also be used.
- These recommendations for plant growth regulators should be used only as general guidelines. Growers must trial all chemicals under their particular conditions.

### Disease Control

- Geranium production areas should always be thoroughly sanitized prior to beginning your growing season and between crops.
- Keep benches and floors free of plant debris, and avoid any unnecessary handling of plants.
- Ball FloraPlant geraniums should be grown drier in the first few weeks to encourage root growth and prevent Pythium problems. After transplanting, a preventative fungicide drench for Pythium and Rhizoctonia is recommended. If you mix your own growing media, pasteurization is required to eliminate potential soil-borne disease and pest problems.
- Control Botrytis with good air movement, adequate spacing and late afternoon venting of the greenhouse to reduce humidity. Regular applications of a labeled fungicide are highly recommended. Under very humid/wet conditions, no fungicide alone can prevent the spread of Botrytis. Air movement and venting of excess moisture, combined with chemical controls, provide the best prevention.
- Avoid geranium rust problems with preventative applications of labeled fungicides.
- Avoid any applications of Medallion to prevent toxicity.

### Common Problems

**Insects:** Aphids, thrips, whitefly, leafminers, fungus gnats, mites.

All Presto Zonal Geranium cuttings are derived from culture and virus-indexed stock from the **Ball Certified Plants®** program.

**Problem:** Plant collapse

**Cause:** Botrytis, Pythium, Rhizoctonia; Saturated soil for extended periods of time (Pythium)

**Problem:** Excess vegetative growth, few flowers

**Cause:** Excessive ammonia in fertilizer; Over-fertilization under low light conditions; Low light levels and overwatering; wet media

**Problem:** Foliage necrosis

**Cause:** Drying out between waterings; Low pH; High salts

**Problem:** Cupped foliage

**Cause:** Low pH

**Problem:** Poor branching, thin plants

**Cause:** Low fertilization in early stages of crop; Low light levels

### Presto Zonal Geranium Crop Schedule & Uses (Crop Schedule In Weeks)

#### Unrooted cuttings

4-in. (10-cm) Pot 1 PP\* - 12-13  
6-in. (15-cm) Pot 1 to 3 PP\* - 13-14  
10-in. (25-cm) Hanging Basket 3 to 5 PP\* - 14-17  
12-in. (30-cm) Hanging Basket 4 to 6 PP\* - 15-19

#### Callused cuttings for direct sticking

4-in. (10-cm) Pot 1 PP\* - 10-11  
6-in. (15-cm) Pot 1 to 3 PP\* - 11-12  
10-in. (25-cm) Hanging Basket 3 to 5 PP\* - 13-15  
12-in. (30-cm) Hanging Basket 4 to 6 PP\* - 14-17

#### Rooted cuttings

4-in. (10-cm) Pot 1 PP\* - 8-9  
6-in. (15-cm) Pot 1 to 3 PP\* - 9-10  
10-in. (25-cm) Hanging Basket 3 to 5 PP\* - 11-13



12-in. (30-cm) Hanging Basket 4 to 6 PP\* - 12-15

\*PP: Plants per pot or basket

**NOTE:** Growers should use the information presented here as a starting point. Crop times will vary depending on the climate, location, time of year and greenhouse environmental conditions. Chemical and PGR recommendations are only guidelines. It is the responsibility of the applicator to read and follow all the current label directions for the specific chemical being used in accordance with all regulations.

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